REMARKS

[0001] The following paragraphs are numbered for ease of future reference. Claims 1-27 are all the claims presently pending in this application. Claims 1-4, 7-8, 10, 14-16, 20-21, 23 and 27 have been amended to more particularly define the claimed invention.

[0002] Applicant further respectfully submits that no new matter is added to the currently amended claims. Applicant respectfully traverses the rejections based on the following discussion.

I.   REJECTION UNDER 35 U.S.C. §101

[0003] Claims 1-27 have been rejected under 35 U.S.C. §101 as being directed toward non-statutory subject matter as not (1) being tied to a particular machine or apparatus, or (2) transforming a particular article to a different state or thing.

[0004] Applicant's amendment also satisfies the two corollaries of the "**machine-or-transformation**" test of *In re Bilsky*, since Applicant's amendment: 1) is not merely field-of-use limitation by imposing meaningful limits on the method claim's scope; and 2) does not merely add insignificant extra-solution activity by reciting a specific machine or a particular transformation of a specific article in an insignificant step, such a data gathering or outputting. See *In re Bilski*, 545 F.3d 943, 88 USPQ2d 1385 (Fed. Cir. 2008). In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

II.   OBJECTION TO THE CLAIMS

[0005] Claims 8, 14-15, 20-21 and 27 are objected to due to informalities and Applicant has

amended the claims in a manner believed fully responsive to all points raised by the Examiner.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this

rejection.

III.   REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

[0006] Claims 1, 3-4, 10, 16, 23 are rejected under 35 U.S.C. §112, second paragraph, as being

indefinite. Claims 1, 3-4, 10, 16, 23 have been amended in a manner believed fully responsive to

all points raised by the Examiner. More specifically, claims 1, 3-4, 10, 16, 23 have been amended

accordingly:

> claim 1: "to different demand priorities";
>
> claim 3: "~~comprise a full spectrum range within each set of priorities~~ each successive
>
> linear programming model allocates a full range of backorder costs within a priority
>
> group to which resources are currently being allocated,";
>
> claim 4: "the previous mathematical linear program as a starting ~~point~~ solution,"; and
>
> claims 10, 16 and 23: "each different linear programming model uses ~~results~~ a program
>
> solution".

[0007] In view of the foregoing, the Examiner is respectfully requested to reconsider and

withdraw this rejection.

IV.   THE PRIOR ART REJECTIONS

A.   The 35 U.S.C. § 103(a) Rejection over Hegde further in view of de Farias

[0008] Claims 1-2, 5-6, 8-9, 15, and 21-22 stand rejected under 35 U.S.C. §103(a) as being

unpatentable over Hegde, et al., U.S. Pat. No. 7197469, (hereinafter "Hegde"), further in view of de Farias, "The Linear Programming Approach To Approximate Dynamic Programming: Theory And Application", (hereinafter "de Farias").

[0009] The Examiner alleges that one of ordinary skill in the art would have been motivated to modify Hegde with the teaching from de Farias to form the invention of claims 1-2, 5-6, 8-9, 15, and 21-22. Applicant submits, however that these references would not have been combined and even if combined, the combination would not teach or suggest each element of the claimed invention.

[0010] Applicant traverses the Examiner's rejection since, among other reasons, Hegde is directed toward dividing each priority ranked scheduled releases (Material Requirements Planning (MRP)) into "N" separate and smaller sized scheduled releases where the priority of each of the "N" releases may be equal to the priority of the original release. The "N" separate and smaller sized scheduled releases are sorted according to priority and then used to determine an optimal supply schedule for allocating resources including component supply and assembly capacity. de Farias is directed toward case studies that demonstrate practical aspects of implementation of approximate linear programming to queuing problems and web server farm management and demonstrate effectiveness of the methodology in problems of relevance to industry. Meanwhile, Applicant's claimed invention is directed toward optimizing each mathematical linear program according to one of <u>a plurality of sets of demand priorities</u> wherein <u>each set contains a plurality of demand priorities</u>.

  More specifically, Applicant submits, that neither Hegde, nor de Farias, nor any alleged combination thereof, teaches or suggests:

  "*<u>optimizing, by a computing device, each mathematical linear program according to one</u>*

of a plurality of sets of demand priorities wherein each set contains a plurality of demand

priorities," per Applicant's independent claim 1, and

      "*aggregating, by a computing device, said demand priorities into different priority*

groups," "*allocating, by a computing device, said resources to the highest priority group of*

demand priorities using a first linear programming model," and "*allocating, by a computing*

device, remaining resources to the next highest priority group of demand priorities using a

second linear programming model, wherein said second linear programming model uses results

from said first linear programming model," per Applicant's impendent claim 8, and similarly,

independent claims 15 and 21.

[0011] With respect to Applicant's independent claim 1, the Examiner alleges that Applicant's

claimed invention of, "*allocating resources to different demand priorities by iteratively solving*

mathematical linear programs," at Hegde's column 4, lines 30-34 that states:

> This involves moving up from lower to higher levels of the BOM (implosion) and
> allocating resources sequentially at each level based on a priority ranking of the MRP
> material releases (which are, in turn, determined by priority ranking of orders they
> support).

[0012] However, with respect to Applicant's claimed invention of, "*optimizing, by a computing*

device, each mathematical linear program according to one of a plurality of sets of demand

priorities wherein each set contains a plurality of demand priorities," the Examiner alleges the

Hegde teaches or suggest Applicant's claimed invention at column 12, lines 17-20 that states:

> The following steps, as shown in FIG. 8, are carried out at each iteration of step 750
> through each time period until the material release 20 has been completely covered…

[0013] However, nowhere does Hegde teach or suggest, "*a plurality of sets of demand priorities*

wherein each set contains a plurality of demand priorities." Hegde merely discloses dividing

priority ranked schedule releases (MRPs) into separate and smaller sized releases each having the

same priority as the undivided MRP. (See column 7, lines 19-26.) Hegde then sorts the MRPs

based on original priority ordering and "an additional level of priority ordering such that

subsequent resource (e.g., component supply and assembly capacity) allocation should be

consistent with rationing of resources", (See column 7, lines 27-33.) Finally, assembly capacities

and component supplies are allocated for each MRP. Nowhere in Hegde is there any teaching or

suggestion of "*optimizing each mathematical linear program according to one of a plurality of*

sets of demand priorities wherein each set contains a plurality of demand priorities," per

Applicant's invention of claim 1.

[0014] With respect to Applicant's invention of claims 8, 15, and 21, the Examiner on page 5 of

the Non-Final Office Action admits that Hegde fails to teach or suggest Applicant's claimed

invention of:

   "*aggregating said demand priorities into different priority groups*,"

   "*allocating said resources to the highest priority group of demand priorities using a first*
linear programming model,"

   "*allocating remaining resources to the next highest priority group of demand priorities*
using a second linear programming model, wherein said second linear programming model uses
results from said first linear programming model," and

   "*repeating said process of allocating remaining resources to the remaining groups of*
demand priorities in order of priority."

[0015] The Examiner on the bottom of page 5 of the Non-Final Office Action alleges that de

Farias teaches, "the use of "approximate dynamic programming" where problems are segragated

into stages (de Farias [p.98] refers to priorities wherein priority levels serve as stages) that are

solved iteratively by linear programming problem formulations."

[0016] Furthermore, de Farias discloses in the Abstract at lines 4-11, that "dynamic

programming algorithms compute and store a table consisting of the optimal value function

evaluated at each state," where approximations to the optimal value function can be computed

and stored efficiently. de Farias furthermore concludes regarding Table 6.1 on p. 98 that the

"approximate LP" algorithm yields significantly better performance as compared to all other

analyzed heuristics as disclosed in de Farias. However, nowhere in de Farias is there any

teaching or suggestion of Applicant's claimed, "*aggregating said demand priorities into different*

priority groups." Furthermore, since there are no disclosed "priority groups" in de Farias, thus,

ipso facto, there can be no "*allocating said resources to the highest priority group of demand*

priorities," and similarly, "*allocating remaining resources to the next highest priority group of*

demand priorities."

[0017] Additionally, nowhere does the Examiner address and nowhere is there any teaching or

suggestion in either Hegde or de Farias regarding Applicant's claimed invention of, "*wherein*

said second linear programming model uses results from said first linear programming model."

Therefore, for this and the above reasons, de Farias fails to overcome the deficiencies of Hegde.

[0018] In summary, Hegde is directed toward dividing each priority ranked scheduled releases

(Material Requirements Planning (MRP)) into "N" separate and smaller sized scheduled releases

where the priority of each of the "N" releases may be equal to the priority of the original release,

while de Farias is directed toward case studies that demonstrate practical aspects of

implementation of approximate linear programming to queuing problems and web server farm

management and demonstrate effectiveness of the methodology in problems of relevance to

industry. However, Applicant's claimed invention is directed toward *optimizing each*

mathematical linear program according to one of a plurality of sets of demand priorities wherein

each set contains <u>a plurality of demand priorities</u>.

[0019] Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection since the alleged prior art references to Hegde and de Farias (either alone or in combination) fail to teach or suggest each element and feature of Applicant's claimed invention.

B.   The 35 U.S.C. § 103(a) Rejection over Hegde further in view of de Farias, Fakhouri and Leachman

[0020] Claims 3-4, 7, 10-14, 16-20 and 23-27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hegde, (hereinafter "Hegde"), further in view of de Farias further in view of Fakhouri, et al., U.S. Pat. No. 746147 and Leachman, et al., "IMPReSS: An Automated Production-Planning and Delivery-Quotation System at Harris Corporation-Semiconductor Sector", (hereinafter "de Farias, Fakhouri and Leachman").

[0021] The Examiner alleges that one of ordinary skill in the art would have been motivated to modify Hegde with the teaching from de Farias, Fakhouri and Leachman to form the invention of claims 3-4, 7, 10-14, 16-20 and 23-27. Applicant submits, however that these references would not have been combined and even if combined, the combination would not teach or suggest each element of the claimed invention.

[0022] The Examiner admits that "Hegde does not specifically teach the following limitations" of "backorder costs penalties are determined independently for each set of priorities and comprise a full spectrum range within each set of priorities." However, the Examiner alleges that Fakhouri in column 29, line 23 states "In such environments, multiple independent decision support systems can co-exist in a cooperative and/or hierarchical manner." However, nowhere in Fakhouri is there any teaching or suggestion of "determining independently for each set of

priorities."

[0023] However, even assuming arguendo that the Examiner's position has some merit, Fakhouri and Leachman fail to teach or suggest, "*optimizing, by a computing device, each mathematical linear program according to one of a plurality of sets of demand priorities wherein each set contains a plurality of demand priorities*," per Applicant's independent claim 1, and "*aggregating, by a computing device, said demand priorities into different priority groups*," "*allocating, by a computing device, said resources to the highest priority group of demand priorities using a first linear programming model*," and "*allocating, by a computing device, remaining resources to the next highest priority group of demand priorities using a second linear programming model, wherein said second linear programming model uses results from said first linear programming model*," per Applicant's impendent claim 8, and similarly, independent claims 15 and 21. Therefore, de Farias, Fakhouri and Leachman fail to overcome the deficiencies of Hegde.

[0024] Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection since the alleged prior art references to Hegde and de Farias, Fakhouri and Leachman (either alone or in combination) fail to teach or suggest each element and feature of Applicant's claimed invention.

V.   FORMAL MATTERS AND CONCLUSION

[0025] In view of the foregoing, Applicant submits that claims 1-27, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.
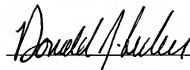
[0026] Should the Examiner find the application to be other than in condition for allowance, the

Examiner is requested to contact the undersigned at the local telephone number listed below to

discuss any other changes deemed necessary in a telephonic interview.

[0027] The Commissioner is hereby authorized to charge any deficiency in fees or to credit any

overpayment in fees to Assignee's Deposit Account No. 09-0456.

Respectfully Submitted,

Date: May 15, 2009

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